



George C. Marshall Space Flight Center  
Marshall Space Flight Center, Alabama 35812

**QD-A-012**  
**REVISION: BASELINE**  
**EFFECTIVE DATE: March 17, 2006**

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# **ORGANIZATIONAL INSTRUCTION**

## **Professional Development Roadmap (PDRM) for Quality Assurance Specialists**

### **OPR(s)**

**QD40**

### **OPR DESIGNEE**

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**DOCUMENT HISTORY LOG**

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline	Draft 11	3/10/2006	New document.

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## **Professional Development Roadmap for S&MA Quality Assurance Specialists**

### **1. PURPOSE, SCOPE, APPLICABILITY**

1.1. Purpose – The purpose of this Organizational Instruction (OI) is to establish a voluntary training and development roadmap for Quality Assurance Specialists within the Marshall Space Flight Center (MSFC) Safety and Mission Assurance (S&MA) Directorate. This OI identifies the minimum level of training, knowledge and skills that MSFC S&MA Quality Assurance Specialists should acquire in developing their quality discipline expertise.

1.2. Scope – This OI is meant to serve as a development roadmap for Quality Assurance Specialists (QAS) who support the MSFC Quality Assurance activities on assigned contracts, programs and projects. It provides a comprehensive list of training; knowledge requirements and on-the-job (OJT) experience needed by MSFC S&MA Quality Assurance Specialists to effectively execute their duties. Quality Assurance Specialists who are pursuing qualification as Auditors will follow Appendix E.

This roadmap establishes three achievement levels (Apprentice, Journeyman and Expert), and provides a process for progressive certification at each level.

This roadmap will be used in conjunction with Individual Development Plans (IDP) and MWI 3410.1 to encourage Quality Assurance Specialists to pursue development activities most appropriate to their specialty. The intent is to use the roadmap to guide the development of IDPs for S&MA Quality Assurance Specialists.

1.3. Applicability – This OI applies to all MSFC Quality Assurance Specialists who seek to provide MSFC S&MA Quality Assurance services, both in-house and off site, and who choose to participate. Mission support contractor personnel are also encouraged to participate in this voluntary program (or in a tailored mission support contractor program.)

Personnel must satisfy the prerequisites specified in this OI before participating in this roadmap process.

### **2. DOCUMENTS**

#### **2.1. Applicable Documents**

2.1.1 MPR 3410.1 Training

2.1.2 MWI 3410.1 Personnel Certification Program

2.1.3 Individual Development Plan Instruction

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### 3. DEFINITIONS AND ACRONYMS

3.1 The Professional Development Roadmap (PDRM) identifies and documents the minimum training, knowledge requirements and on-the-job (OJT) experience needed by MSFC S&MA personnel at three levels of their discipline expertise development.

3.2 Individual Development Plan (IDP) – is a document developed jointly by the employee and supervisor to plan the employee’s training and development needs as well as to identify possible training solutions. The plan will focus on immediate and short-term goals that are in line with the longer-term goals of both the employee and the organization. The IDP focuses on enhancing the competencies the employee needs to improve the Center’s, and ultimately, the Agency’s effectiveness.

3.3 Qualification – the act of verifying and documenting that personnel have completed required training, medical requirements as required, and have demonstrated specified proficiency.

3.4 Qualification levels – are defined as:

- 3.5 - Novice: The lowest recognizable level (Appendix A)
- Journeyman: Intermediate level of expertise. (Appendix B)
- Expert: The highest level of expertise. (Appendix C)

3.5 Qualification Criteria – are specified in Appendix A, and include three categories of accomplishments that demonstrate discipline expertise:

- Training – traditional classroom, online and computer based.
- Reference documents – demonstrating understanding.
- On the Job training (OJT) – demonstrating specific skills.

3.6 Prerequisites – that must be satisfied prior to becoming an Apprentice and participating in the PDRM process are specified in Appendix A.

3.7 Application for Qualification: - must be submitted by the candidate seeking certification at the completion of the requirements at each level. Application consists of:

- Completed and approved application Form (Appendix D)
- Completed and approved copy of Appendix A, (for Novice qualification), Appendix B (for Journeyman qualification), or Appendix C (for Expert qualification)

3.8 Implementation requirements – are specific actions required to initially implement this OI. (See section 4.1).

3.9 Qualification by Designation (Grandfathering) – Is the designation (qualification) by the S&MA Director of an individual at a specific level of discipline expertise without completion of the required PDRM line items. This shall only be allowed during the initial stages of OI

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implementation to qualify personnel as mentors and champion(s).

3.10 Qualification of Existing Personnel – Shall be earned by candidates who are not eligible for grandfathering by documenting previously completed training. (See section 4.3).

3.11 Equivalent Training Criteria – are for classes or experiences that may be substituted for those specified in the Appendices. During initial stages of the program, or when new employees are transferred into S&MA, previously completed items may be substituted with approval of the Champion. Thereafter, the Champion must approve all equivalent criteria in advance.

3.12 Personnel and Roles – required to implement this OI are defined below:

3.12.1 Candidate – is an employee or mission support contractor who seeks certification via the PDRM process.

3.12.2 Supervisor – The organizational line manager who provides supervisory functions and responsibilities for employee positions requiring training and/or qualification. The supervisor helps create, and approves, the candidate's IDP, verifies completion of the qualification requirements, and recommends the candidate for qualification.

3.12.4 Mentor – is an experienced Quality Assurance Specialist who is selected as, and who agrees to perform as, a coach to the candidate in the PDRM qualification process. Mentors are also responsible for verifying candidate's understanding of the required reference documents.

Mentors are normally required to be certified at least at the Journeyman Level (Expert level if mentoring a candidate for Expert qualification).

A Quality Assurance Specialist who does not meet the qualification requirement, but who has extensive and relevant experience, may be approved to serve as Mentor on a case-by-case basis. This exception requires approval by the candidate's Department Manager.

3.12.5 Qualification Review Board – is responsible for reviewing and approving certification applications. The Board shall consist of the S&MA Director, the discipline champion, the Safety, Reliability and Quality Assurance Policy & Assessment Department Manager, and others selected by the S&MA Director. The Board shall also review and approve any changes to this OI.

3.13 PDRM Designation Memorandum – a document signed by the Director of S&MA that identifies S&MA personnel who are authorized to serve as discipline champions, mentors and Qualification Review Board members.

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3.14 Quality Assurance Specialist- The Quality Assurance Specialist (QAS) classification is a professional position which includes a broad range of product and process expertise, as well as in-depth understanding of the application and implementation of quality assurance systems and techniques. Due to NASA's use of state-of-the-art technology and many one-of-a-kind missions, a NASA/MSFC QAS must have the ability to apply this expertise to unique products and operations associated with aerospace hardware development, qualification and acceptance. As a representative of NASA S&MA In-House Quality Assurance, the QAS is generally the sole quality assurance representative responsible for review and approval of work authorizing documentation, evaluating products and processes, and performing acceptance.

The QAS works with, and communicates verbally and in writing with a wide variety of government and industry personnel, and international customers and partners, ranging from working level through engineering and management. The QAS is generally a member of a NASA/contractor team, as well as the S&MA department teams. This is primarily an MSFC in-house function; however, QASs are often called upon to support audits, investigations, launch operations and other off-site activities. Some QAS activities require an in-depth knowledge of safety requirements associated with hazardous operations.

3.15 Continuing Development requirement – All personnel qualified, as experts must participate in continued development activity to maintain their qualification.

#### 4. INSTRUCTIONS

4.1 Implementation Requirements – Implementation of this OI will begin upon approval by the S&MA Director, and will require the following additional actions:

- Selecting the Quality Assurance Specialist discipline champion and designating (grandfathering) him/her to be qualified at the expert level.
- Selecting Quality Assurance Specialist discipline Mentors, and designating (grandfathering) them to be qualified at the Journeyman or Expert level.
- Appointing Qualification Review Board Members.
- Publishing the PDRM Designation Memorandum.
- Authorizing and initiating a work task for the Champion and/or Mentors to prepare a set of checklists and sample questions to be used as guidelines for demonstrating candidate knowledge of the reference documents.
- Communicating to all personnel of the existence, purpose, expectations, process and names of key personnel associated with this OI.

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4.2 Qualification Process - A candidate seeking qualification will use the following process. This process is further illustrated in the flow chart in Section 11.

4.2.1 Candidate declares S&MA specialty as Quality Assurance Specialist. Supervisor approves.

4.2.2 Candidate documents completion of prerequisites using a completed copy of the application form (Appendix D). The application form, along with proof of meeting the prerequisites are then submitted to the supervisor for approval. After approval the candidate is now an Apprentice.

4.2.3 Apprentice seeks/obtains a mentor (with support from the supervisor and discipline champion).

4.2.4 Apprentice works with supervisor to develop an IDP containing appropriate items from the PDRM (Appendix A).

4.2.5 Apprentice pursues the required developmental activities per the PDRM and IDP.

4.2.6 Upon completion of each developmental activity, the Apprentice obtains the proper signature on the PDRM (Appendix A) as shown in the following table:

Criteria Type	Required Activity	Verifying Signature
Training Classes	Complete successfully	Champion/Mentor
Reference Documents	Demonstrate understanding	Mentor
OJT Experiences	Complete successfully	Supervisor

4.2.7 Upon completion and documentation of all required activities for certification, Apprentice completes the application form, obtains signatures from the discipline champion and submits completed package to his/her supervisor.

4.2.8 Supervisor signs the application and forwards it to the S&MA Director for action by the Qualification Review Board.

4.2.9 The Qualification Review Board reviews the application, and makes the approval decision.

4.2.10 A Novice may earn Journeyman certification by continuing the above process using Appendix B.

4.2.11 A Journeyman may earn Expert certification by continuing the above process using Appendix C.

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4.3 Qualification of Experienced Personnel - Existing S&MA personnel and new personnel hired/transferred into S&MA, who are experienced in the quality assurance discipline, may seek certification at any level for which they qualify by documenting their previously completed achievements and using the following process. This process is further illustrated in the flow chart 11-1.

4.3.1 Candidate documents previously completed training classes and OJT achievements on the appropriate appendices (e.g. a candidate applying for Expert qualification must complete Appendix A, B and C):

- Equivalent training and experiences may be substituted for the criteria specified in the appendices with the approval of the discipline champion.
- The training department will verify training classes. Candidates are responsible for providing proof (e.g. copies of certificates, grade reports and/or transcripts) of non-NASA training to the training organization.
- OJT will be verified by signature of the supervisor.

4.3.2 Candidate must demonstrate his/her understanding of the reference documents using the normal qualification process (See section 4.2).

4.3.3. Upon completion and documentation of all required activities for certification, candidate completes the application form (Appendix D), obtains discipline champion approval and submits the package to his/her supervisor for approval.

4.3.4 Supervisor approves the application and forwards it to the Qualification Review Board for action.

4.3.5. The Qualification Review Board reviews the application and decides the certification level to be granted.

4.4 Maintaining Qualification - It is expected that personnel qualified at the Expert level shall (1) continue training (at least 40 hours per year) in their discipline (2) continue to perform OJT activity at the level described in Appendix C and (3) actively participate in the monthly working group meetings. The forty hours of continued training shall be waived if the Expert obtains and maintains ASQ Certified Quality Inspector or Technician status.

4.5 Process Measurement - will be accomplished by baselining the number of personnel certified at each level, and thereafter measuring the progress toward qualification by S&MA



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personnel. The baseline will be created 6 months after implementation. Measurements will be made semi-annually thereafter. Each semi-annual measurement will count the number of individuals certified at each level, and estimate the progress (percent complete) of each participating individual toward the next level. Department Managers will report this measurement at the next scheduled monthly status review.

4.6 Amendments – Changes to this Organizational Instruction are made per the documented Organizational Instruction Change Process. The Qualification Review Board will review proposed changes to this PDRM prior to submitting them to the MSFC Director of S&MA for approval. The custodial responsibility for this PDRM shall be assigned to the Safety, Reliability, and Quality Assurance Policy & Assessment Department.

## 5. NOTES

5.1. OI Replacement - None

## 6. SAFETY PRECAUTIONS AND WARNING NOTES

None

## 7. APPENDICES, DATA, REPORTS, AND FORMS

- A – PDRM for Quality Assurance Specialists: Novice
- B – PDRM for Quality Assurance Specialists: Journeyman
- C – PDRM for Quality Assurance Specialists: Expert
- D – Qualification Application Form
- E - Addendum for Quality Assurance Specialists desiring to be Auditors

## 8. QUALITY RECORDS

<u>Quality Record</u>	<u>Repository</u>	<u>Period of Time</u>
Completed PDRM (Official Course completion information will be kept by the MSFC Training Office)	S&MA Training Officer	5 years (Documentation of the appropriate PDRM will be kept by S&MA)

## 9. TOOLS, EQUIPMENT, AND MATERIALS

None

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## 10. PERSONNEL TRAINING REQUIREMENTS

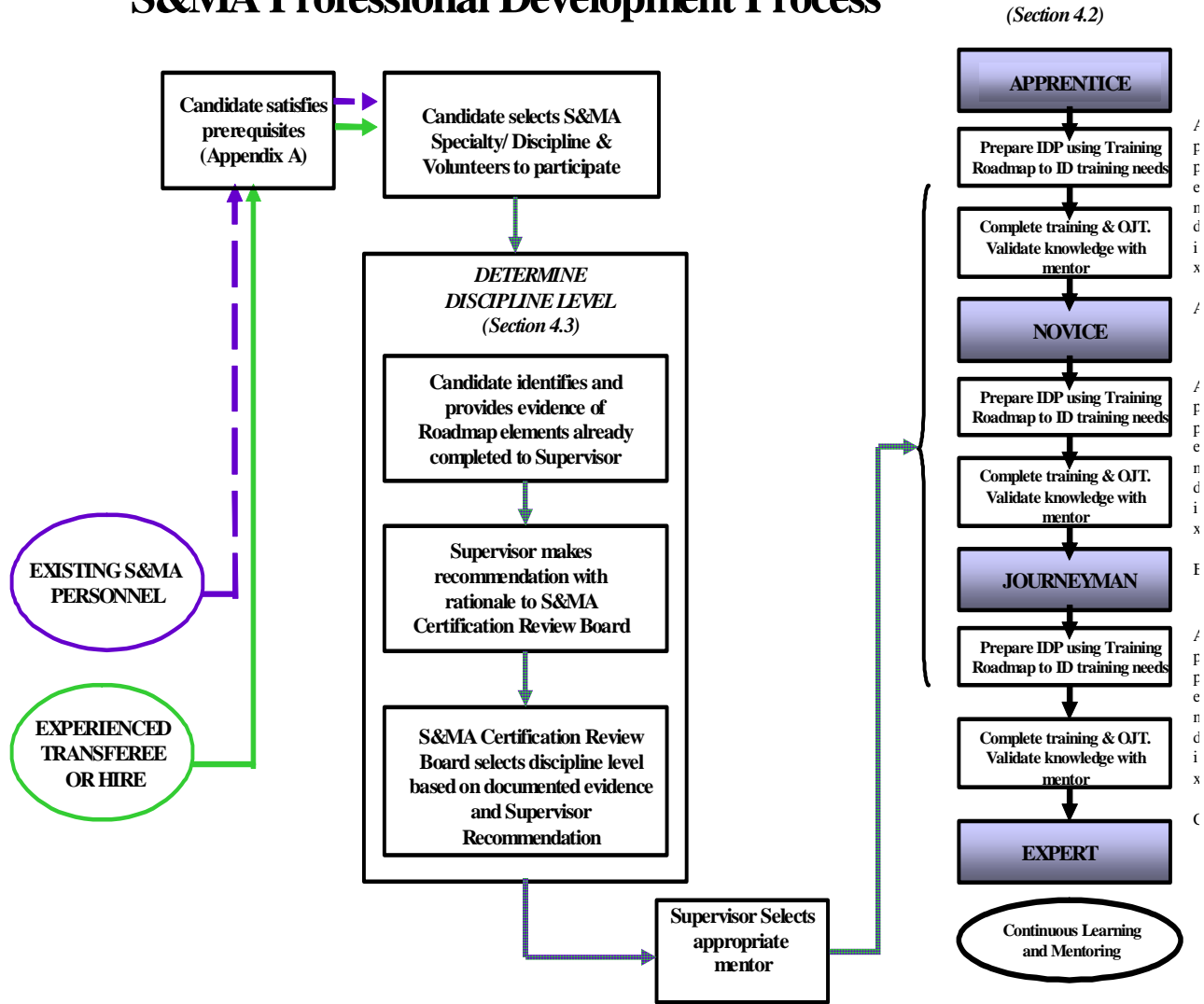
See Appendix A - C

## 11. FLOW DIAGRAM

The flow diagram (Figure 11-1) illustrates the PDRM certification process described in this OI.

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Figure 11-1  
**S&MA Professional Development Process**



Note: Qualification Review Board is the decision authority for qualification levels and approvals.

## APPENDIX A: PDRM for Quality Assurance Specialists: NOVICE Qualification Requirements

### A.1 Objective:

This Appendix provides the qualification criteria for Quality Assurance Specialists to be certified at the Novice level, using the process described in the body of the Organization Instruction.

### A.2 Prerequisites:

Prior to beginning the process, the candidate must qualify as an Apprentice Quality Assurance Specialist by satisfying the following prerequisites:

1. Candidate must be classified as a Quality Assurance Specialist (QAS), GS1910
2. Candidate must volunteer to participate in the PDRM qualification program, declare his/her Specialty as quality assurance specialist, and obtain approval of his/her immediate supervisor.
3. Candidate must complete the S&MA Overview Orientation Class (currently a 4 hour internal class instructed by QD40)
4. Candidate must complete a program specific overview orientation class for the candidate's assigned program, including the S&MA aspects of that program.

### A.3 Experience

Prior to being qualified as a Novice quality assurance specialist, candidate must have at least 1 to 3 years of experience in related production, planning or quality assurance fields. The candidate should have:

- Background in ISO/quality systems, methods techniques
- Understanding of drawings and schematics
- Communication skills
- Mechanical/dimensional/electrical workmanship inspection
- Basic operational safety, preferably around hazardous operations
- Technical specialty related to aerospace vehicles, rockets, propulsion, cargo/payloads, hazardous operations or test facilities
- Basic familiarity with computers and be able to provide brief documents in Word and Powerpoint

Expertise and certifications gained from employment by other Agencies, Centers, military or industry in the above listed disciplines and skills will be considered applicable. The employee must furnish evidence of these qualifications.

APPENDIX A: PDRM for Quality Assurance Specialists:  
NOVICE Qualification Requirements

**Classes are listed for various functions performed by a Quality Specialist. The Supervisor and Discipline Champion will determine what is necessary for each candidate.**

**A = All, E = Electrical, M = Mechanical, T = Test, TL = Team Lead**

<b>TRAINING CLASS REQUIREMENTS</b> <b>Equivalent classes shall be substituted with approval by the Discipline Champion. Sequence is suggested but not mandatory.</b>		<b>SIGNATURE/ DATE COMPLETE</b>
*Basic Quality Training: In-house class (2 hours)	A	_____ Signature                      Date
*Introduction to ISO-9000: In-house class (2 hours)	A	_____ Signature                      Date
*Quality Training for New S&MA Employees: MSFC class (hours TBD)	A	_____ Signature                      Date
Measuring Techniques (DTI * S06 or Equivalent) *DTI is Defense Training Institute	A	_____ Signature                      Date
Basic Blueprints (DTI BBR or Equivalent)	A	_____ Signature                      Date
Calibration Requirements (DTI S07 or Equivalent)	A	_____ Signature                      Date
Drawings, Dimensioning and Tolerancing (DTI S44 or Equiv)	A	_____ Signature                      Date
Program Critical Hardware S&MA Monitor/Manual Move (SHE)	A	_____ Signature                      Date
Hazard Communication (Hazcom) (SHE)	A	_____ Signature                      Date
ESD Electrical (EdTec)	A	_____ Signature                      Date
Acceptance: Solar - SMA-001-01 (estimated 30 minutes)	A	_____ Signature                      Date

APPENDIX A: PDRM for Quality Assurance Specialists:  
NOVICE Qualification Requirements

Acquisition: Solar - SMA-002-01 (estimated 1 hour)	A	_____ Signature	_____ Date
Audits and Reviews: Solar - SMA-004-01 (estimated 1/2 hour)	A	_____ Signature	_____ Date
Configuration Management: Solar - SMA-005-01 (estimated 1 hour)	A	_____ Signature	_____ Date
Data Management: Solar - SMA-012-01 (estimated 1 hour)	A	_____ Signature	_____ Date
Federal Acquisition Regulations: Solar - SMA-018-01 (estimated 1 hour)	A	_____ Signature	_____ Date
Mandatory Inspections: Solar - SMA-030-01 (estimated 30 minutes)	A	_____ Signature	_____ Date
Material Review Board: Solar - SMA-033-01 (estimated 30 minutes)	A	_____ Signature	_____ Date
Metrology and Calibration: Solar - SMA-035-01 (estimated 30 minutes)	A	_____ Signature	_____ Date
NASA Safety Reporting System: Solar - 038-01 (estimated 30 minutes)	A	_____ Signature	_____ Date
Process Control: Solar - 047-01 (Estimated 30 minutes)	A	_____ Signature	_____ Date
Qualification: Solar - SMA-049-01 (estimated 30 minutes)	A	_____ Signature	_____ Date
Receiving Inspection: Solar - SMA-050-03 (estimated 30 minutes)	A	_____ Signature	_____ Date
Soldering Inspecton per MSFC-STD-2903	E	_____ Signature	_____ Date

APPENDIX A: PDRM for Quality Assurance Specialists:  
NOVICE Qualification Requirements

REFERENCE MATERIALS Demonstrate familiarity with key concepts as defined by the Discipline Champion		SIGNATURE/ DATE COMPLETE	
Test Preparation Sheet Approval (per Testing Lab OI)	A	_____ Signature	_____ Date
Test Procedure Approval (per Testing Lab OI)	A	_____ Signature	_____ Date
Field Cleaning (QD-QA-026, and Testing Lab OIs)	T	_____ Signature	_____ Date
Maintaining Cleanliness (per Testing Lab OIs)	T	_____ Signature	_____ Date
Explosives/Propellant Handling (per Testing Lab OIs, MSFC-STD-1800, MWI 8715.10)	A	_____ Signature	_____ Date
Explosives/Propellant Inspection (QD-QA-019, MSFC-STD-1800)	A	_____ Signature	_____ Date
Test Surveillance (QD-QA-003)	A	_____ Signature	_____ Date
PCH/Critical Lift/Transportation (QD-QA-005, MWI 6410.1) PCH = Program Critical Hardware	A	_____ Signature	_____ Date
Test Readiness Review (per Testing Lab OIs)	T	_____ Signature	_____ Date
Mishap Investigation (MWI 8621.1)	A	_____ Signature	_____ Date
Welding Inspection (QD-QA-022)	M	_____ Signature	_____ Date
Penetrant Inspection (QD-QA-009) Level 1	M,T	_____ Signature	_____ Date
Ultrasonic Inspection (QD-QA-024) Level 1	M,T	_____ Signature	_____ Date

APPENDIX A: PDRM for Quality Assurance Specialists:  
NOVICE Qualification Requirements

Radiographic Film Interpretation (QD-QA-029) Level 1	M, T	_____ Signature	_____ Date
Magnetic Particle Inspection (QD-QA-028) Level 1	M, T	_____ Signature	_____ Date
ISO Audit (QD-QA-015, MPR 1280.6, MWI 5330.2)	A	_____ Signature	_____ Date
Eddy Current Inspection (QD-QA-025) Level 1	M,T	_____ Signature	_____ Date
Facility Nonconformance Documentation (Applicable Test Lab OI)	T	_____ Signature	_____ Date
NASA Test Article Nonconformance Documentation (MPR 8730.3)	A	_____ Signature	_____ Date
Material Review Board (MWI 8730.3)	A	_____ Signature	_____ Date



APPENDIX A: PDRM for Quality Assurance Specialists:  
NOVICE Qualification Requirements

<b>ON THE JOB TRAINING</b> <b>Complete the following activities or equivalent.</b>		<b>SUPERVISOR SIGNATURE/ DATE</b> <b>COMPLETE</b>
Under appropriate supervision, Review, approval and closure of TPS:	A	_____ Signature                      Date
Under appropriate supervision, observe/support Review, approval and closure of Procedures: 1 year or 3 test projects	A	_____ Signature                      Date
Under appropriate supervision, observe/support Initiating, approving QTPS: initiate 5 QTPSs	T	_____ Signature                      Date
Under appropriate supervision, observe/support Test surveillance: 1 year or 3 projects	A	_____ Signature                      Date
Under appropriate supervision, observe/support Witness Maintain Cleanliness: Six months	A	_____ Signature                      Date
Under appropriate supervision, observe/support Witness torque: Six months	A	_____ Signature                      Date
Under appropriate supervision, observe/support Verify Calibration: Three months	A	_____ Signature                      Date
Under appropriate supervision, observe/support Surveillance of PCH moves: See MWI 3410.1	A	_____ Signature                      Date
Cleanroom Protocol and Contamination Control NSTC Course 088	A	_____ Signature                      Date
Cleaning Processes and Systems NSTC 089	A	_____ Signature                      Date

## APPENDIX B: PDRM for Quality Assurance Specialists: JOURNEYMAN Qualification Requirements

### B.1 Objective:

This Section provides the qualification criteria for Quality Assurance Specialists to be qualified at the Journeyman level, using the process described in the body of the Organization Instruction.

### B.2 Prerequisites:

Prior to beginning the process, the candidate must be certified as a Novice Quality Assurance Specialist per the requirements in Appendix A.

### B.3 Years of Experience:

Candidate should have at least 3 to 5 years of relevant experience in the discipline prior to being certified at the Journeyman level. Expertise and certifications gained from employment by other Agencies, Centers, military or industry in the above listed disciplines and skills will be considered. The employee must furnish evidence of these qualifications.

APPENDIX B: PDRM for Quality Assurance Specialists:  
JOURNEYMAN Qualification Requirements

<b>TRAINING CLASS REQUIREMENTS</b> <b>Equivalent classes shall be substituted with approval by the Discipline Champion. Sequence is suggested but not mandatory.</b>		<b>SIGNATURE/ DATE COMPLETE</b>
Rework and Repair: Solar – SMA-054-01 (estimated 30 minutes)	A	_____ Signature                      Date
S&MA Documentation: Solar - SMA-058-01 (estimated 30 minutes)	A	_____ Signature                      Date
Stamp Control: Solar - SMA-064-01 (estimated 30 minutes)	A	_____ Signature                      Date
Testing: Solar - SMA-067-01 (estimated 1 hour)	A	_____ Signature                      Date
Training and Qualification - Solar - SMA-068-01 (estimate 30 minutes)	A	_____ Signature                      Date
Interpersonal/communication Skills on technical teams; class to be identified.	A	_____ Signature                      Date
Penetrant Inspection (Hellier or Equivalent) Level II	A	_____ Signature                      Date
Magnetic Particle Inspection (Hellier or Equivalent) Level II	M	_____ Signature                      Date
Radiographic Inspection (Hellier or Equivalent) Level II	M	_____ Signature                      Date
Ultrasonic Inspection (Hellier or Equivalent) Level II	M	_____ Signature                      Date
Eddy Current Inspection (Hellier or Equivalent) Level II	M	_____ Signature                      Date
Liquid Propulsion/Rocket Engines (DOD Ammo School/UAH/Equiv)	T	_____ Signature                      Date

APPENDIX B: PDRM for Quality Assurance Specialists:  
JOURNEYMAN Qualification Requirements

Solid Propulsion/Rocket Motors (DOD Ammo School/UAH/Equivalent)	T	_____ Signature	_____ Date
Transportation of Hazardous Materials (DOD Ammunition School or Equivalent)	T	_____ Signature	_____ Date
Explosives Handler /ESD (NSTC 009)	A	_____ Signature	_____ Date
Explosives Inspection (NSTC 009 plus OJT per MWI 3410.1)	A	_____ Signature	_____ Date
Hypergol Safety/Design/Ops (NSTC 040/055)	T	_____ Signature	_____ Date
Cryogenic Safety (NSTC 313)	T	_____ Signature	_____ Date
Safety in Pressure Systems (NSTC 315/317)	A	_____ Signature	_____ Date
Confined Space (NSTC 806) (if required by assignment)	T	_____ Signature	_____ Date
Lockout/Tagout (NSTC 814)	A	_____ Signature	_____ Date
Overhead Cranes and Material Handling (NSTC 205)	A	_____ Signature	_____ Date
Hydrogen Safety (NSTC 037)	T	_____ Signature	_____ Date
Oxygen Systems Fire Hazards Operations/Maintenance (NSTC 052/053)	T	_____ Signature	_____ Date
Flexhose Safety (NSTC 056)	A	_____ Signature	_____ Date
Pressure Systems ASME	T	_____ Signature	_____ Date
Strain Gauge Application	T	_____ Signature	_____ Date

APPENDIX B: PDRM for Quality Assurance Specialists:  
JOURNEYMAN Qualification Requirements

Situational Awareness (NSTC 034)	A	_____	_____
		Signature	Date
Microsection Evaluation	E	_____	_____
		Signature	Date
Cleanliness Process Monitoring and Audits NSTC 090	A	_____	_____
		Signature	Date

APPENDIX B: PDRM for Quality Assurance Specialists:  
JOURNEYMAN Qualification Requirements

<b>REFERENCE MATERIALS</b> <b>Demonstrate familiarity with key</b> <b>concepts as defined by the Discipline</b> <b>Champion</b>		<b>SIGNATURE/ DATE COMPLETE</b>
ANSI/ISO/ASQ Q9001-2000, “American National Standard, Quality management systems – Requirements”	A	_____ Signature                      Date
AS-9100 “Quality Systems – Aerospace – Model for Quality Assurance in Design, Development, Production, Installation and Servicing”	A	_____ Signature                      Date
NSTS 5300.4 (1D-2) Safety, Reliability, Maintainability and Quality Provisions for the Space Shuttle Program	A	_____ Signature                      Date
NHB 5300.4(1C) Inspection Systems Provisions for Aeronautical and Space System Material, Parts, Components, and Services" Cancelled (Shuttle)	A	_____ Signature                      Date
MPD 1280.1 Marshall Management System	A	_____ Signature                      Date
SSP-41173 ISS Quality System Requirements	E	_____ Signature                      Date
SSP-50431 ISS Program Requirements-Payloads	E	_____ Signature                      Date
NPD 1280.1, “NASA Management System Policy”	A	_____ Signature                      Date

APPENDIX B: PDRM for Quality Assurance Specialists:  
JOURNEYMAN Qualification Requirements

ON THE JOB TRAINING Complete the following activities or equivalent.		SIGNATURE/ DATE COMPLETE
Surveillance of PCH moves: See MWI 3410.1	A	_____ Signature                      Date
Field Cleaning Test Area/components: Six months	T	_____ Signature                      Date
Field Cleaning Facilities: Three projects	T	_____ Signature                      Date
Transportation & Handling of Test Articles: 2 large and 2 small	A	_____ Signature                      Date
Videoscope: Six months	T	_____ Signature                      Date
Internal Audits: 1 audit	A	_____ Signature                      Date
Initiate NASA DR: 2 DRs	A	_____ Signature                      Date
Process Test Facility Deviation/Waiver: assist with processing 2 waivers	T	_____ Signature                      Date
Mishap investigation support: 1 Mishap	A	_____ Signature                      Date
Welding Inspection: per AWS	M	_____ Signature                      Date
PT: per MWI 3410.1	M	_____ Signature                      Date
RT: per MWI 3410.1	M	_____ Signature                      Date
MT: per MWI 3410.1	M	_____ Signature                      Date

APPENDIX B: PDRM for Quality Assurance Specialists:  
JOURNEYMAN Qualification Requirements

Electrical Inspection: per MWI 3410.1	E	_____ Signature	_____ Date
Mechanical Inspection: Demonstrate proficiency	M	_____ Signature	_____ Date
Open Items List /Test constraints closure and disposition: 2 projects	T	_____ Signature	_____ Date
Hydroproof/leak check: 6 months	A	_____ Signature	_____ Date
Confined Space: per MWI 3410.1	T	_____ Signature	_____ Date
Test Plan/TRD review: 3 projects	T	_____ Signature	_____ Date
Material Review Board support: 10 MRB actions	A	_____ Signature	_____ Date



## APPENDIX C: PDRM for Quality Assurance Specialists: EXPERT Qualification Requirements

### C.1 Objective:

This Appendix provides the qualification criteria for Quality Assurance Specialists to be qualified at the Expert level, using the process described in the body of the Organization Instruction.

### C.2 Prerequisites:

Prior to beginning the process, the candidate must be certified as a Journeyman Quality Assurance Specialist per the requirements of Appendix B.

### C.3 Years of Experience:

The candidate must have at least 8-10 years of relevant discipline experience prior to becoming certified at the Expert Level. Expertise and certifications gained from employment by other Agencies, Centers, military or industry in the above listed disciplines and skills will be considered. The employee must furnish evidence of these qualifications.

APPENDIX C: PDRM for Quality Assurance Specialists:  
EXPERT Qualification Requirements

<b>TRAINING CLASS REQUIREMENTS</b> <b>Equivalent classes shall be substituted with approval by the Discipline Champion. Sequence is suggested but not mandatory.</b>		<b>SIGNATURE/ DATE COMPLETE</b>	
Continuous Risk Management (NASA or equivalent)	A	_____	_____
		Signature	Date
ISO Auditor	A	_____	_____
		Signature	Date
Basic Acquisition/FAR Regulations	A	_____	_____
		Signature	Date
Composites (Wichita State University, or equivalent)	M	_____	_____
		Signature	Date
Management (NASA or equivalent)	TL	_____	_____
		Signature	Date
Leadership (NASA or equivalent)	TL	_____	_____
		Signature	Date
Cultural Diversity (NASA)	TL	_____	_____
		Signature	Date
Root Cause Analysis (NSTC 049)	A	_____	_____
		Signature	Date
MORT Mishap Investigation (NSTC 006)	A	_____	_____
		Signature	Date
Basic Electronics (DTI S54 or Equivalent)	A	_____	_____
		Signature	Date
Statistical Process Control (DTI S81 or Equivalent)	A	_____	_____
		Signature	Date
Advanced QA and/or Technical Training as documented and approved by the Team Lead/Supervisor	A	_____	_____
		Signature	Date
NDE Level III Certification	M	_____	_____
		Signature	Date

APPENDIX C: PDRM for Quality Assurance Specialists:  
EXPERT Qualification Requirements

<b>REFERENCE MATERIALS</b> <b>Demonstrate familiarity with key concepts as defined by the Discipline Champion</b>		<b>SIGNATURE/ DATE COMPLETE</b>
Facility Build-up/Activation/Baselining (QD-QA-006)	T	<div>_____</div> <div>Signature Date</div>
Test Facility Deviation/Waiver Processing (TD70-016)	T	<div>_____</div> <div>Signature Date</div>
Quality Planning (QD-QA-004, QD-QE-001, MWI 7120.1, QD-PA-005)	A	<div>_____</div> <div>Signature Date</div>
Ground Operations Safety Assessment and Risk Mitigation Program (MWI 8715.15)	A	<div>_____</div> <div>Signature Date</div>
Contractor Performance Evaluation (MWI 5116.1)	TL	<div>_____</div> <div>Signature Date</div>
Quality Program Provisions for MSFC Test Area Contractors (MSFC-STD-3459)	T	<div>_____</div> <div>Signature Date</div>
Ethics Training (Legal office)	TL	<div>_____</div> <div>Signature Date</div>

APPENDIX C: PDRM for Quality Assurance Specialists:  
EXPERT Qualification Requirements

<b>ON THE JOB TRAINING</b> <b>Complete the following activities or equivalent.</b>		<b>SIGNATURE/ DATE COMPLETE</b>
Explosives Transportation & Handling: See MWI 3410.1	A	_____ Signature                      Date
Explosives Installation: 2 SRM operation and 2 pyro/EED operations	A	_____ Signature                      Date
Explosives Inspection: See MWI 3410.1	A	_____ Signature                      Date
Source Evaluation Board advisor: 1 SEB	TL	_____ Signature                      Date
Present to TRR/ORI/SRT: 5 formal QA assessments	A	_____ Signature                      Date
Mishap investigation team member: 1 Mishap	A	_____ Signature                      Date
Contractor Evaluation Process: provide formal input to contractor evaluation 3 times	TL	_____ Signature                      Date

## APPENDIX D: PDRM APPLICATION

This application is for (Check One):

\_\_\_ Entry into the PDR Qualification process as an Apprentice;  
All prerequisites have been satisfied

\_\_\_ NOVICE Qualification  
Appendix A is Attached and approved

\_\_\_ JOURNEYMAN Qualification  
Appendix B is attached and approved

\_\_\_ EXPERT Qualification  
Appendix C is attached and approved

Name of Candidate: \_\_\_\_\_

Organization: \_\_\_\_\_

Building/Location: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Signatures:

Candidate Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Discipline Champion: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

S&MA Director: \_\_\_\_\_ Date: \_\_\_\_\_

## **APPENDIX E: Addendum for Quality Assurance Specialists desiring to be Auditors**

### **Appendix E**

The purpose of this Appendix is to define a voluntary training and development roadmap for Quality Assurance Specialists desiring to be Auditors within the Marshall Space Flight Center (MSFC) Safety and Mission Assurance (S&MA) Directorate. This Appendix identifies the minimum level of training, knowledge and skills that MSFC S&MA Auditors should acquire in developing their quality discipline expertise.

It should be noted that this appendix is in addition to, not instead of, the QAS PDRM. The QAS Auditor must meet the applicable requirements specified in Appendices A, B, C, and/or D as appropriate. Wherever in this appendix the word Auditor is used, it refers to a QAS Auditor.

On a case by case basis and with the approval of the S&MA Director, an individual may qualify as an Auditor, without meeting the criteria for a QAS. In which case, a unique requirements matrix will be developed and approved by the mentor, supervisor, discipline champion, and the QD40 Manager.

## **APPENDIX EA: PDRM for Auditors: NOVICE Qualification Requirements**

### **EA.1 Objective:**

This Appendix provides the qualification criteria for QAS Auditors to be qualified at the Novice level, using the process described in the body of the Organization Instruction.

### **EA.2 Prerequisites:**

Prior to beginning the process, the candidate must qualify as an Apprentice Auditor by satisfying the following prerequisites:

1. Candidate must meet the criteria specified in Appendix A.1 (1)
2. Candidate must volunteer to participate in the PDRM qualification program, declare his/her specialty as Auditor, and obtain approval of his/her immediate supervisor.
3. Candidate must complete the S&MA Overview Orientation Class, (4 hour internal class).
4. Candidate must complete a program specific overview orientation class for the candidate's assigned program, including the S&MA aspects of that program, if provided.
5. Candidate must be skilled in the use of the MS Office Suite including Word, Excel and PowerPoint, and must show evidence of capability to make an effective presentation.

### **EA.3 Experience:**

Prior to being certified as a Novice Auditor, candidate must have at least 1 to 3 years of experience in fields such as quality control, quality engineering, quality assurance, and/or quality management systems that provided:

1. Familiarity with Quality assurance or related work,
2. Pertinent product or process knowledge and skill,
3. Ability to interpret and apply management system specifications,
4. Skill in dealing with others in person to person work relationships,

**APPENDIX EA: PDRM for Auditors:  
NOVICE Qualification Requirements**

<b>TRAINING CLASS REQUIREMENTS</b> <b>Equivalent classes may be substituted with approved by the discipline Champion.</b> <b>Sequence is suggested but not mandatory.</b>		<b>SIGNATURE/ DATE COMPLETE</b>
ISO 9000 Introduction/Overview (Solar: SMA-023-01)		<div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 5px;"> <span>Signature</span> <span>Date</span> </div>
Quality Assurance (Solar: SMA-061-01)		<div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 5px;"> <span>Signature</span> <span>Date</span> </div>
Audits and Reviews (SMA-004-01)		<div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 5px;"> <span>Signature</span> <span>Date</span> </div>
Preventive Action/Corrective Action (SMA-046-01)		<div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 5px;"> <span>Signature</span> <span>Date</span> </div>
S&MA Documentation: Solar (SMA-058-01)		<div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 5px;"> <span>Signature</span> <span>Date</span> </div>
Conflict Management: MSFC Professional Development Class (2 days)		<div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 5px;"> <span>Signature</span> <span>Date</span> </div>
Internal Auditor Training (RAB certified)		<div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 5px;"> <span>Signature</span> <span>Date</span> </div>

Notes:

1. Classes identified as in-house classes are MSFC classes that must be registered with the Training Department.



**APPENDIX EA: PDRM for Auditors:  
NOVICE Qualification Requirements**

<b>REFERENCE MATERIALS</b> <b>Demonstrate familiarity with key concepts</b> <b>as defined by the discipline champion</b>		<b>SIGNATURE/ DATE COMPLETE</b>
NASA-STD-8739.8 “Quality Assurance Standard”		_____ Signature                      Date
MPG 1280.1 “Marshall Management Manual”		_____ Signature                      Date
QD-QE-011 “Quality Assurance Quality Audits”		_____ Signature                      Date
MPR-1280.6 “Internal Quality Audits”		_____ Signature                      Date
ISO 9001 “Standard”		_____ Signature                      Date
AS9100 Checklist “American Standard”		_____ Signature                      Date

Notes:

1. Process Champion is responsible for identifying specific level of understanding required (See section 4.1).
2. Cancelled standards are included due to their educational value.

**APPENDIX EA: PDRM for Auditors:  
NOVICE Qualification Requirements**

<b>ON THE JOB TRAINING</b> <b>Complete the following activities</b>		SUPERVISOR SIGNATURE/ DATE COMPLETE
Under appropriate supervision, observe/support conduct a requirements review in support of a NASA/MSFC project or program.		_____ Signature                      Date
Under appropriate supervision, observe/support the review of contract statement of work (Quality Assurance/Quality Development Sections) in support of a NASA/MSFC project or program.		_____ Signature                      Date
Under appropriate supervision, observe/support the planning and conduct of two Quality assurance audits in support of a NASA/MSFC project or program.		_____ Signature                      Date
Under appropriate supervision, observe/support formal Quality verification in support of a NASA/MSFC project or program.		_____ Signature                      Date
Under appropriate supervision, observe/support a Quality peer review in support of a NASA/MSFC project or program.		_____ Signature                      Date
Under appropriate supervision, observe/support a Quality configuration review board in support of a NASA/MSFC project or program.		_____ Signature                      Date
Under appropriate supervision, observe/support at least one design review in support of a NASA project or program.		_____ Signature                      Date
Join and participate in relevant professional society (e.g. Quality Engineering) by attending meetings and participating in discussions and activities.		_____ Signature                      Date

Notes:

1. Candidate should work with his/her Supervisor to identify specific applicable assignments. Discipline Champion may be consulted to ensure proposed assignment will satisfy the qualification requirements.

## **APPENDIX EB: PDRM for Auditors: JOURNEYMAN Qualification Requirements**

### **EB.1 Objective:**

This Appendix provides the qualification criteria for Auditors to be qualified at the Journeyman level, using the process described in the body of the Organization Instruction.

### **EB.2 Prerequisites:**

Prior to beginning the process, the candidate must be qualified as a Novice Auditor per the requirements in Appendix EA.

### **EB.3 Years of Experience:**

Prior to qualification as a Journeyman Auditor, candidate should have 3 to 5 years of relevant experience in the discipline that demonstrates:

1. Practical knowledge in quality management systems criteria for monitoring, controlling, or maintaining a healthy management system.
2. Direct experience in performing audits as it relates to management systems.
3. Working independently, managing and leading internal audit teams.

**APPENDIX EB: PDRM for Auditors:  
JOURNEYMAN Qualification Requirements**

<b>TRAINING CLASS REQUIREMENTS</b> Equivalent classes may be substituted with approved by the discipline Champion. Sequence is suggested but not mandatory		<b>SIGNATURE/ DATE COMPLETE</b>
Lead Auditor Training (RAB certified)		_____ Signature                      Date
Risk Management Overview (SMA-055-01)		_____ Signature                      Date
Leading from the Inside Out: MSFC Professional Development Class (2 days)		_____ Signature                      Date
Communicating For Results: MSFC Professional Development Class (2 days).		_____ Signature                      Date
Data Management (SMA-012-01)		_____ Signature                      Date
Operational Auditing		_____ Signature                      Date
Root Cause Analysis		_____ Signature                      Date
Audit Report Writing		_____ Signature                      Date
Auditing Outsourced Government Services (GS USDA)		_____ Signature                      Date
Supplier Auditor Training (Atlantic Consultants or equivalent)		_____ Signature                      Date
Team Development in the Workplace: MSFC Organizational Development Class (3 days)		_____ Signature                      Date

Notes:

1. Classes identified as in-house are MSFC classes that must be registered with the Training Department.

**APPENDIX EB: PDRM for Auditors:  
JOURNEYMAN Qualification Requirements**

<b>REFERENCE MATERIALS</b> <b>Demonstrate working knowledge with</b> <b>contents as defined by the discipline</b> <b>champion</b>		<b>MENTOR SIGNATURE/ DATE</b> <b>COMPLETE</b>
MWI 5330.6 Outsourcing		_____ Signature                      Date
MWI 5330.1 Supplier Audits		_____ Signature                      Date
MWI 5330.2 NEQA		_____ Signature                      Date
MWI 7120.1 “Program and Project Management”		_____ Signature                      Date
EMS 14001 “Environmental Standard		_____ Signature                      Date
Elective: To be determined by discipline champion		_____ Signature                      Date

Notes:

1. Process Champion is responsible for identifying specific level of understanding required (See section 4.1).

**APPENDIX EB: PDRM for Auditors:  
JOURNEYMAN Qualification Requirements**

<b>ON THE JOB TRAINING</b> <b>Complete the following activities in any sequence</b>		<b>SUPERVISOR SIGNATURE/ DATE COMPLETE</b>
Conduct (or participate on a team conducting) requirements review in support of a NASA project or program.		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>
Review (or participate on a team reviewing) a contract statement of work (Quality assurance and Quality development sections) in support of a NASA project or program.		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>
Perform (or participate on a team performing) an internal audit in support of a NASA project or program.		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>
Perform (or participate on a team performing) each type of a Quality milestone review in support of a NASA project or program.		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>
Perform (or participate on a team performing) a peer review in support of a NASA project or program.		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>
Support formal Quality verification in support of a NASA/MSFC project or program.		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>
Support completion of a system Quality safety checklist in support of a NASA/MSFC project or program.		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>
Participate in a Quality Review Board in support of a NASA project or program		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>
Contribute to relevant professional society (e.g.: Society of Reliability Engineers) activity via discussions, committee/sub-committee work or writing/presenting a paper.		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>
Participate in inter-program or inter-center coordinating activity to enhance MSDC and/or NASA expertise in your discipline		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>
Work toward professional qualification		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>
Mentor other personnel in your discipline to help them improve their skills/expertise. This can be as a mentor to others in this PDRM process or as an informal coach in your daily work		<div style="display: flex; justify-content: space-between;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Signature</div> <div>Date</div> </div>

**APPENDIX EB: PDRM for Auditors:  
JOURNEYMAN Qualification Requirements**

Notes:

1. Candidate should work with his/her Supervisor to identify specific applicable assignments.  
Discipline Champion may be consulted to ensure proposed assignment will satisfy the qualification requirements.

## APPENDIX EC: PDRM for AUDITORS: EXPERT Qualification Requirements

### EC.1 Objective:

This Appendix provides the qualification criteria for Auditors to be qualified at the Expert level, using the process described in the body of the Organization Instruction.

### EC.2 Prerequisites:

Prior to beginning the process, the candidate must be qualified as a Journeyman Auditor per the requirements of Appendix EB.

### EC.3 Years of Experience:

Prior to being qualified as an Expert Auditor, The candidate must have at least 8 to 10 years experience in the Quality Assurance profession with:

1. Unique experience in quality management systems,
2. Responsibility for developing Novice and Journeyman Auditors, and
3. Serving as lead auditor and competent at planning and executing internal, supplier and National Engineering Quality Assessment (NEQA) Audits.



APPENDIX EC: PDRM for AUDITORS:  
EXPERT Qualification Requirements

<b>TRAINING CLASS REQUIREMENTS</b> <b>Equivalent classes may be substituted with approved by the discipline Champion.</b> <b>Sequence is suggested but not mandatory</b>		<b>SIGNATURE/ DATE COMPLETE</b>	
AS9100 Lead Auditor Training (5 days).		<div></div> <div>Signature</div>	<div></div> <div>Date</div>
Problem Solving and Decision Making: MSFC Organizational Development Class (3 days)		<div></div> <div>Signature</div>	<div></div> <div>Date</div>
7 Habits of Highly Effective People		<div></div> <div>Signature</div>	<div></div> <div>Date</div>
Process Mapping/Six Sigma		<div></div> <div>Signature</div>	<div></div> <div>Date</div>
Process vs. Compliance Auditing		<div></div> <div>Signature</div>	<div></div> <div>Date</div>
Consulting: Activities, Skills, Attitudes		<div></div> <div>Signature</div>	<div></div> <div>Date</div>
Assessing Business Risk for Internal Auditors (Institute of Internal Auditors)		<div></div> <div>Signature</div>	<div></div> <div>Date</div>
Mentoring: MSFC Organizational Development Class (1 day).		<div></div> <div>Signature</div>	<div></div> <div>Date</div>
Quality Assessment of the Audit Activity (includes the Internal Assessor/Validator Accreditation Exam)		<div></div> <div>Signature</div>	<div></div> <div>Date</div>
Elective: To be determined by discipline champion		<div></div> <div>Signature</div>	<div></div> <div>Date</div>
Elective: To be determined by discipline champion		<div></div> <div>Signature</div>	<div></div> <div>Date</div>

APPENDIX EC: PDRM for AUDITORS:  
EXPERT Qualification Requirements

<b>REFERENCE MATERIALS</b> <b>Demonstrate comprehensive knowledge of contents as defined by the discipline champion</b>		<b>MENTOR SIGNATURE/ DATE</b> <b>COMPLETE</b>
CMMI – Guidelines for Process Integration and Product Improvement		<div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 5px;"> <span>Signature</span> <span>Date</span> </div>
Safeware – System Safety and Computers – A guide to preventing accidents and losses caused by technology – Nancy Leveson		<div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 5px;"> <span>Signature</span> <span>Date</span> </div>

Notes:

1. Process Champion is responsible for identifying specific level of understanding required (See section 4.1).

APPENDIX EC: PDRM for AUDITORS:  
EXPERT Qualification Requirements

ON THE JOB TRAINING Complete the following activities in any sequence		SUPERVISOR SIGNATURE/ DATE COMPLETE
Create a Quality Assurance Plan in support of a NASA project or program.		_____ Signature                      Date
Participate in a Source Evaluation Board responsible for the Quality assurance contract statement and subsequent proposal review.		_____ Signature                      Date
Lead a team conducting a requirements review in support of a NASA project or program.		_____ Signature                      Date
Participate in inter-program or inter-center coordinating activity to enhance MSFC and/or NASA expertise in your discipline.		_____ Signature                      Date
Become a mentor for others in Audit. Guide other team members, including design team members, to understand the importance and benefits of upfront Audit efforts, to influence the design and to provide high value contribution to the program.		_____ Signature                      Date
Recommended but not yet required: Obtain relevant external professional qualification.		_____ Signature                      Date
Provide leadership to professional society activities (e.g.: working groups defining standards, society committees/ subcommittees doing work to advance the discipline).		_____ Signature                      Date

Notes:

1. Candidate should work with his/her supervisor to identify specific applicable assignments. Discipline Champion may be consulted to ensure proposed assignment will satisfy the qualification requirements.

## APPENDIX D: PDRM APPLICATION

This application is for (Check One):

\_\_\_ Entry into the PDRM Qualification process as an Apprentice;  
All prerequisites have been satisfied

\_\_\_ NOVICE Qualification  
Appendix EA is Attached and approved

\_\_\_ JOURNEYMAN Qualification  
Appendix EB is attached and approved

\_\_\_ EXPERT Qualification  
Appendix EC is attached and approved

Name of Candidate: \_\_\_\_\_

Organization: \_\_\_\_\_

Building/Location: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Signatures:

Candidate Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Discipline Champion: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor Signature: \_\_\_\_\_ Date: \_\_\_\_\_

S&MA Director: \_\_\_\_\_ Date: \_\_\_\_\_  
(Or designee)